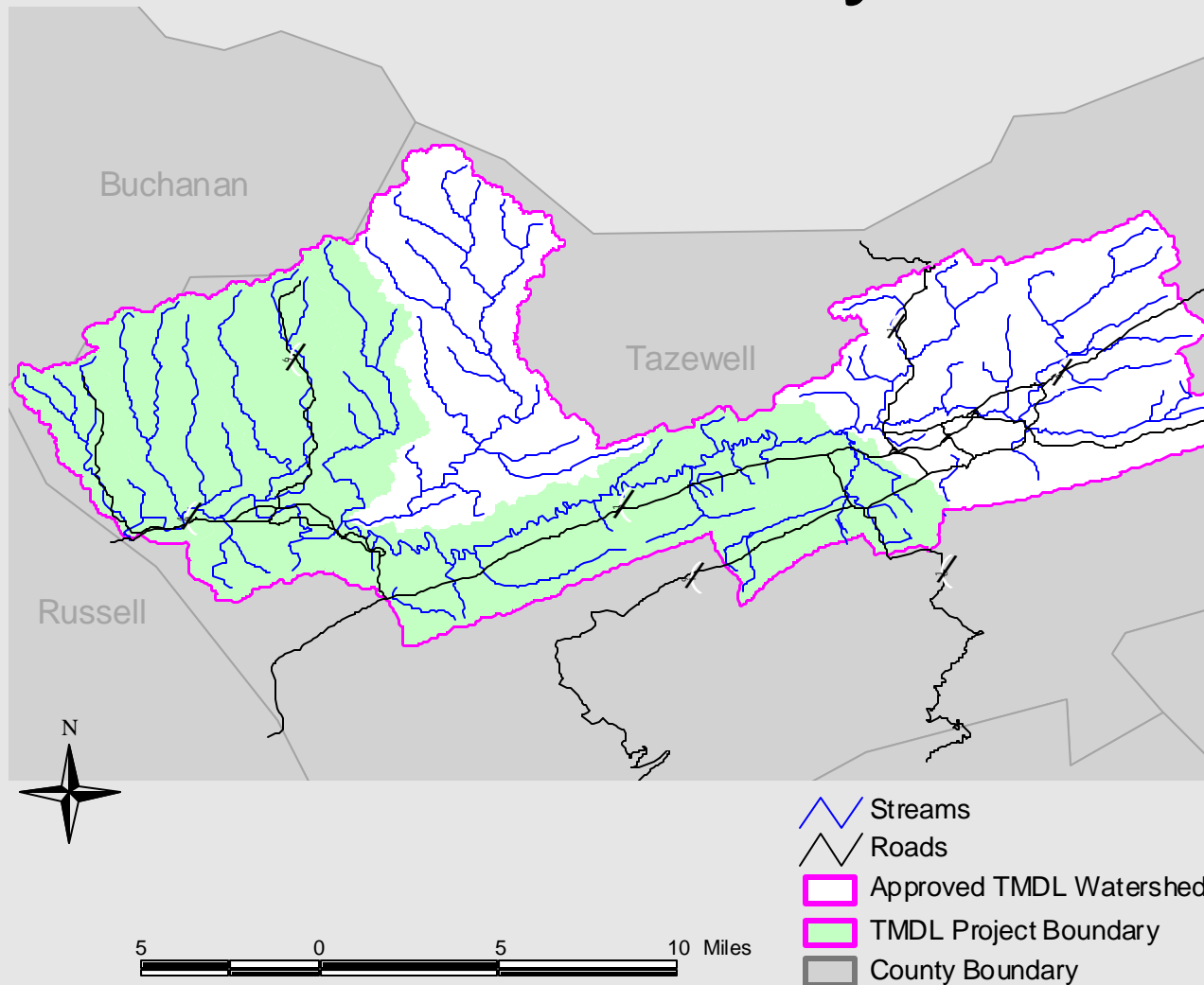




Clinch River and Tributaries Bacteria and Benthic TMDLs First TAC and Public Meeting

July 8, 2010

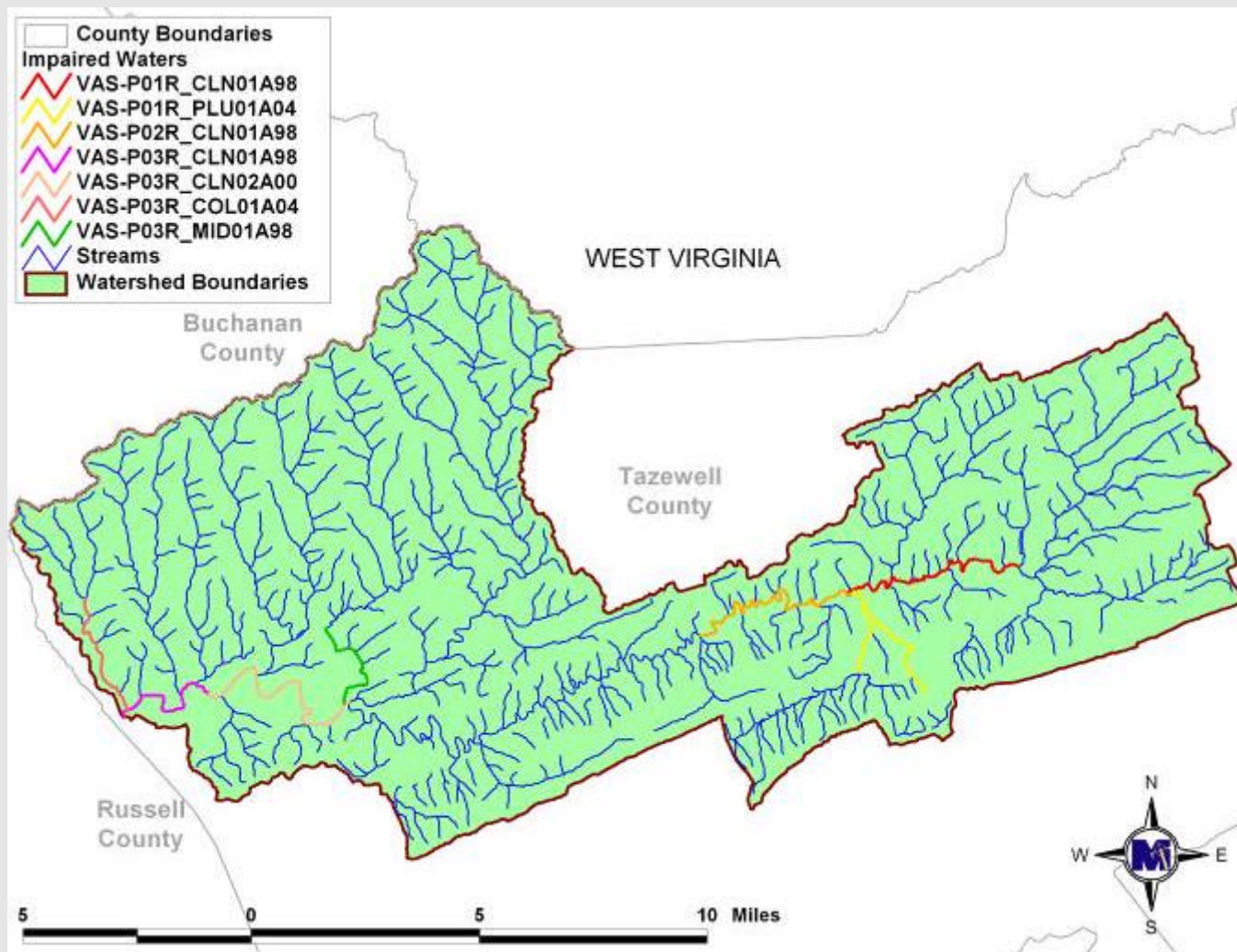
Location of Study Area



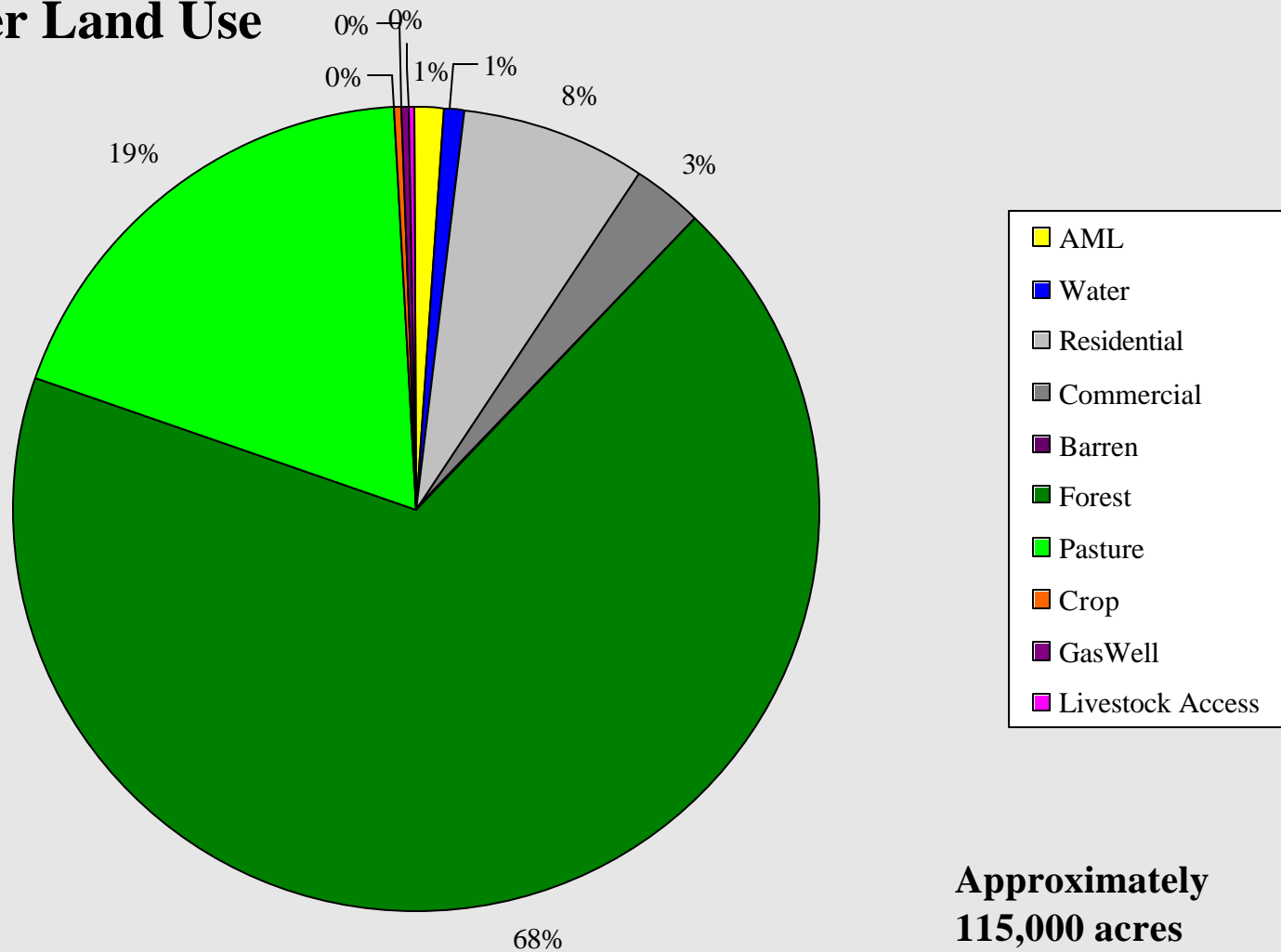
Impairments

Stream Name Impairment Id	Initial Listing Year	Impairment Location
Clinch River VAS-P01R_CLN01A98	2004	Lincolnshire Branch downstream to Plum Creek.
Clinch River VAS-P02R_CLN01A98	2006	Plum Creek to Deskin Creek.
Clinch River VAS-P03R_CLN02A00	2004	Dry Branch downstream to Raven_Doran raw water intake.
Clinch River VAS-P03R_CLN01A98	2002	Raven-Doran raw water intake to Mill Creek.
Plum Creek VAS-P01R_PLU01A04	2004	Headwaters to the Clinch River
Middle Creek VAS-P03R_MID01A98	2006	River mile 2.53 downstream to the Clinch River
Coal Creek VAS-P03R_COL01A04	2008	Left Fork Coal Creek downstream to the Clinch River.

Impairments

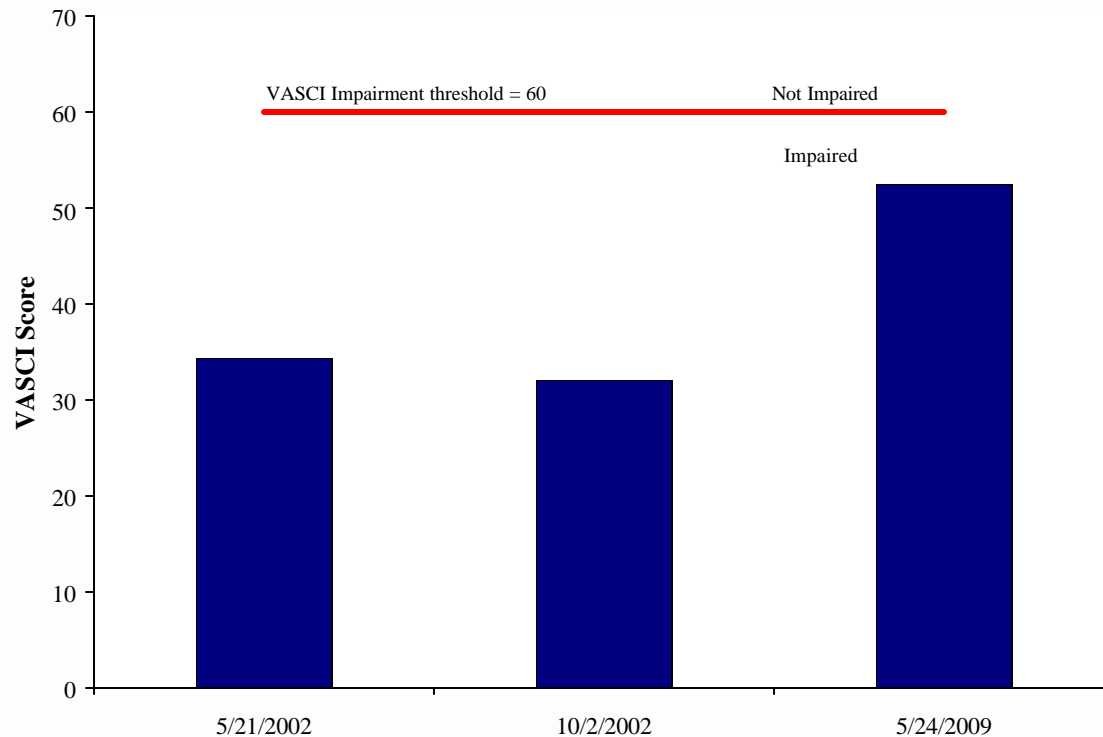


Clinch River Land Use



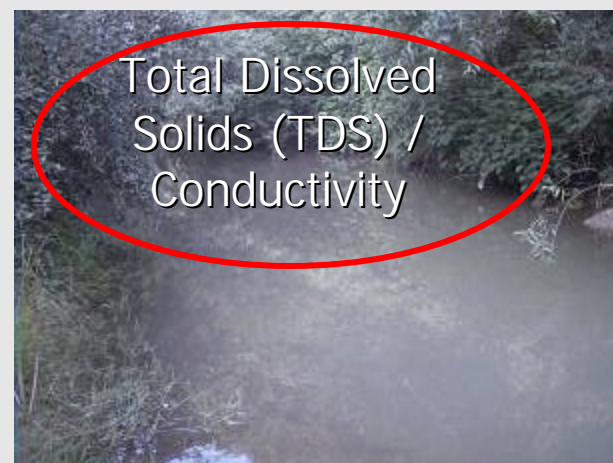
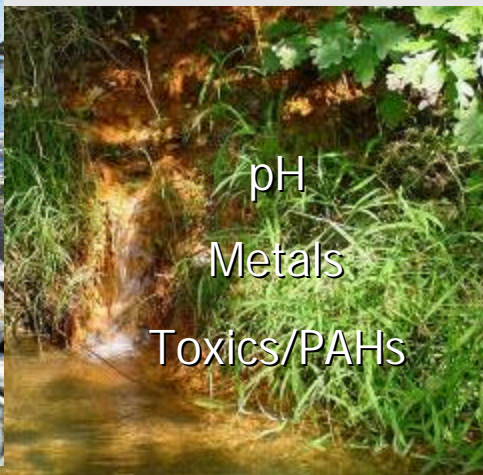
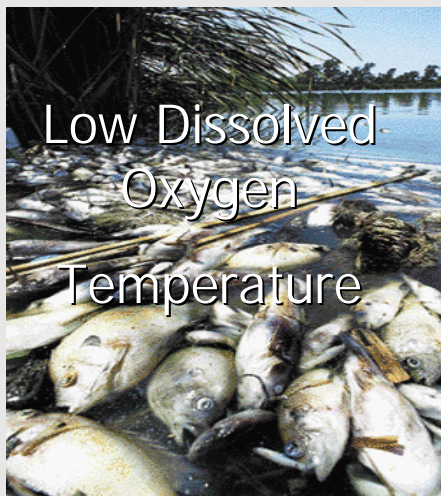
Coal Creek Biological Monitoring Scores at 6BCOL001.93

What Are Biological Monitoring Scores in Coal Creek?



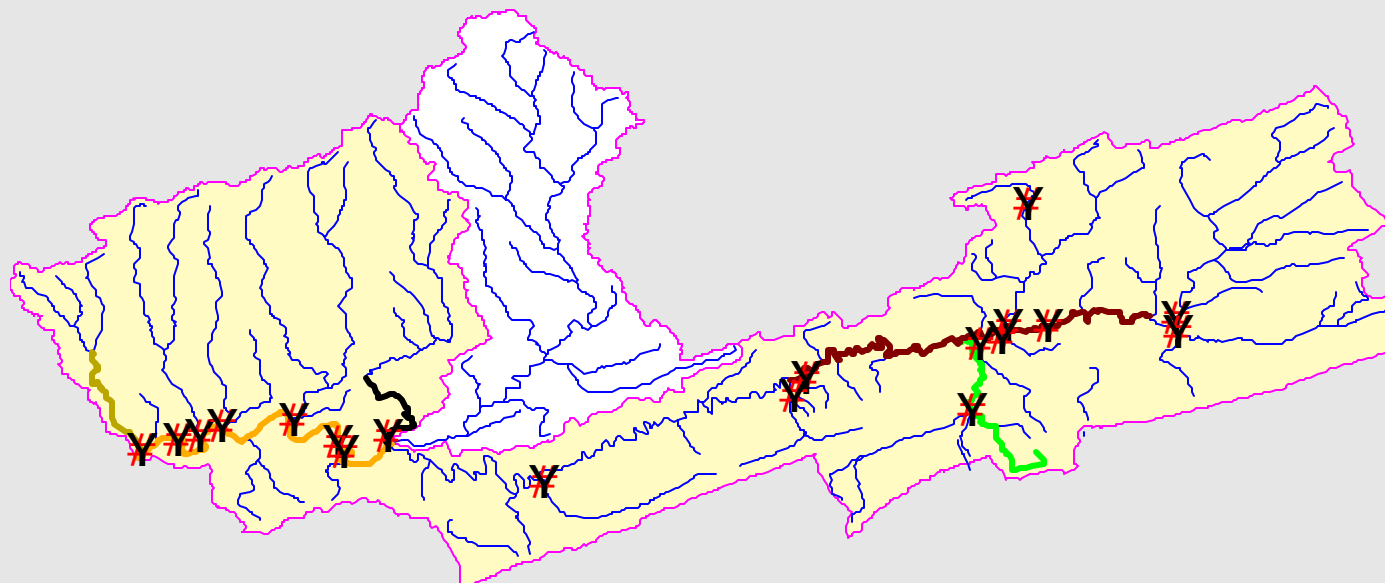
Coal Creek:

What is harming the Aquatic Life?



Bacteria Data

DEQ Monitoring Station Locations



5 0 5 10 Miles

VADEQ Monitoring Stations

Clinch Impaired Segments

Plum Creek - Bacteria

Coal Creek - Benthic

Middle Creek - Bacteria

Clinch River - Bacteria

Clinch River - Bacteria

Streams

TMDL Project Boundary

Water Quality Data Description

-Fecal Coliform -

Stream	Station	Date	Count	Min	Max	Avg	Median	Std Dev	Violation %
Clinch River	6BCLN315.11	1/90 - 6/03	80	0	4,400	397	200	624	22.5%
Clinch River	6BCLN320.91	4/04	1	50	50	50	NA	NA	0.0%
Clinch River	6BCLN321.13	7/05 - 12/09	62	25	2,100	321	100	544	16.1%
Clinch River	6BCLN339.53	5/92 - 3/01	56	0	6,000	439	100	1,078	12.5%
Clinch River	6BCLN346.60	8/01 - 6/03	12	100	2,800	633	300	814	33.3%
Clinch River	6BCLN348.00	8/01 - 6/03	12	100	900	292	150	297	25.0%
Johnson Branch	6BJNN001.35	5/02 - 3/03	2	180	450	315	NA	191	50.0%
North Fork Clinch River	6BNCL000.30	8/01 - 6/03	12	100	1,300	233	100	345	8.3%
Plum Creek	6BPLU000.40	8/01 - 6/03	12	100	7,200	1,038	125	2,023	33.3%

Water Quality Data Analysis

- *E.coli* -

Stream	Station	Date	Count	Min	Max	Avg	Median	Std Dev	Violation %
Big Indian Creek	6BBIG000.12	1/07 - 12/09	21	25	920	300	135	324	28.6%
Cavitts Creek	6BCAV000.02	2/07 - 12/08	12	25	2,000	280	135	549	8.3%
Clinch River	6BCLN315.11	1/07 - 12/09	21	25	1,600	297	120	442	14.3%
Clinch River	6BCLN320.91	4/04	1	10	10	10	NA	NA	0.0%
Clinch River	6BCLN321.13	7/02 - 12/09	56	10	2,000	222	78	419	10.7%
Coal Creek	6BCOL000.12	7/07 - 12/09	18	120	2,000	701	475	513	61.1%
Mudlick Creek	6BMCK000.11	1/07 - 12/09	21	25	480	115	25	135	4.8%
Middle Creek	6BMID000.20	11/04 - 12/09	36	25	2,000	441	110	642	25.0%
Town Hill Creek	6BTHC000.03	1/07 - 12/08	12	25	1,800	461	290	507	33.3%

Water Quality Data Analysis

- *E.coli* - Continued

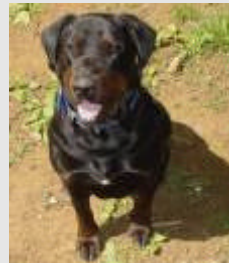
Stream	Station	Date	Count	Min	Max	Avg	Median	Std Dev	Violation %
Clinch River	6BCLN346.60	2/07 - 12/08	12	50	2,000	534	315	603	33.3%
Clinch River	6BCLN348.00	2/07 - 12/08	12	25	1,800	467	160	640	33.3%
Deskin Creek	6BDES000.06	2/07 - 2/08	7	25	1,700	416	220	589	28.6%
Johnson Branch	6BJNN001.35	5/02 - 3/03	2	180	360	270	270	127	0.0%
North Fork Clinch River	6BNCL000.30	2/07 - 4/08	8	25	900	274	98	374	25.0%
Plum Creek	6BPLU000.40	2/07 - 12/08	12	25	700	135	50	195	8.3%
Plum Creek	6BPLU002.15	2/07 - 12/08	12	25	1,200	510	440	328	50.0%
Pounding Mill Creek	6BPON000.04	2/07 - 2/08	4	25	350	113	38	159	0.0%
South Fork Clinch River	6BSFK000.77	2/07 - 12/08	12	25	800	272	220	258	16.7%

Pollutant Source Assessment

- Bacteria -

Source Assessment

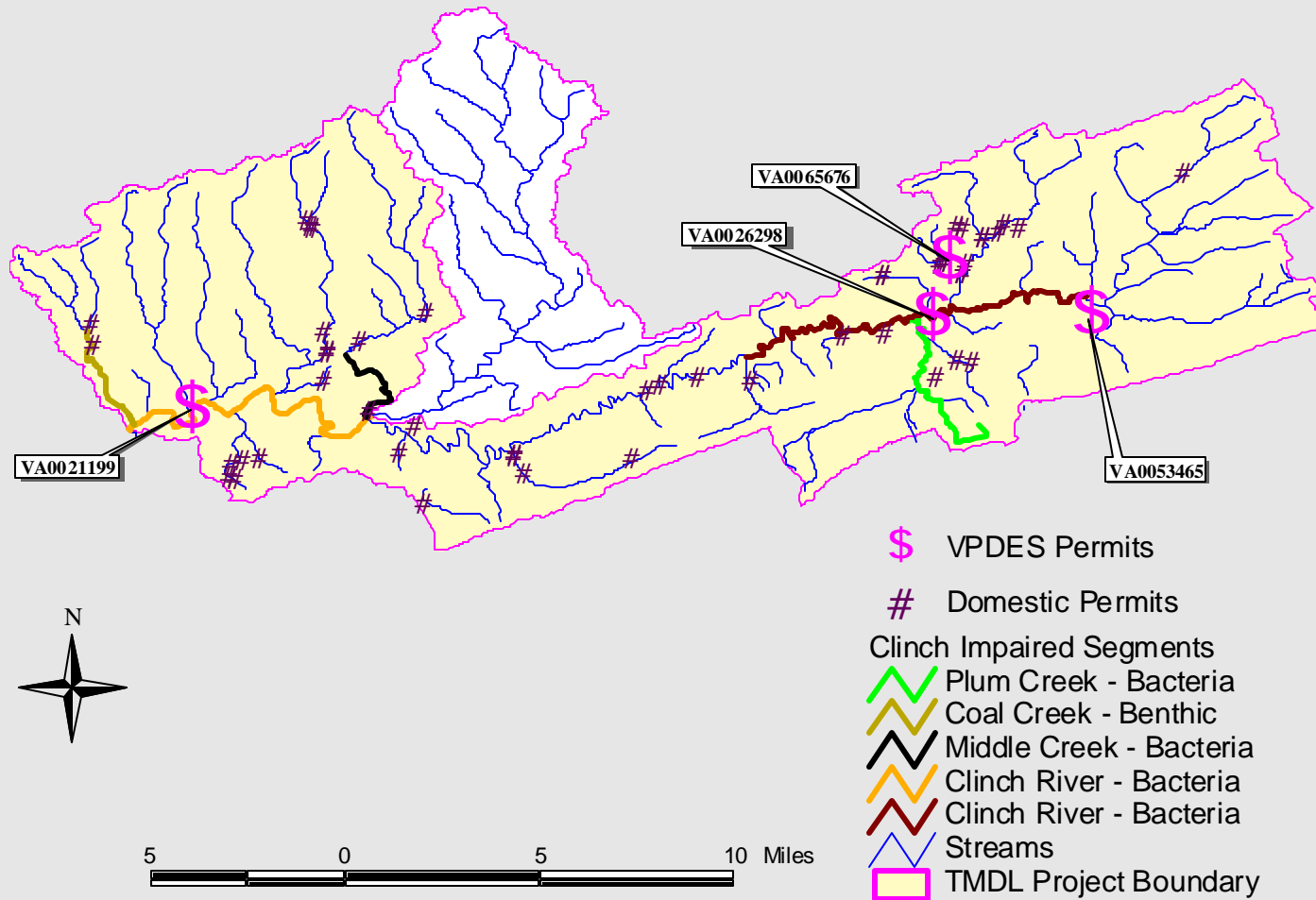
- Permitted discharges
 - Wastewater treatment facilities
 - Other Permitted Discharges
- Human
 - Biosolids
 - Failed Septic Systems
 - Straight Pipes
 - Overflows
- Pets
- Livestock
- Wildlife



Permitted Discharges – VPDES

Permit	Receiving Stream(s)	Facility Name	Permitted Flow (MGD)	Permitted for E. coli Control
VA0021199	Clinch River	Richlands Regional WWTF	4.00	Y
VA0026298	Clinch River	Tazewell WWTP	2.00	Y
VA0065676	Mundy Branch, UT	Glenrae II Mobile Home Park STP	0.01	Y
VA0053465	Clinch River	Greater Tazewell Area Regional WTP	0.25	N
VAG*		49 Domestic Discharges	0.001	Y

Location of Permitted Discharges



Human Source

Population, housing units, and onsite treatment system based on U.S. Census

- **Septic Systems**
 - Failure to soil surface throughout year
 - Lateral movement continuously to stream
- **Straight Pipes**
 - Direct continuous input into stream
- **Biosolids**
 - Land-applied

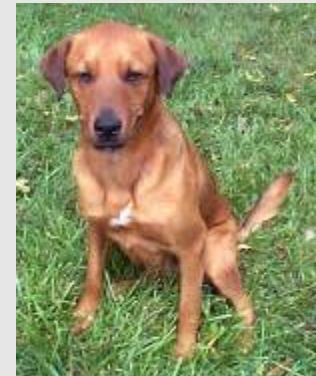


Human Source (2010) For The Project Area

Human Population	Housing Units (HU)	HU on Sewer	HU on Septic	HU on "Other"	Failing Septic Systems
20,464	10,467	6,212	3,873	384	864

Pet Sources

- Population/household based on literature values, veterinarians, and animal control
- Translated to housing units based on U.S. Census
- Land-applied



Pet Source (2010) For The Project Area

Dog Population	Cat Population
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5,153	5,768
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5,153	5,768
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Livestock Sources

- Population
 - Virginia Agricultural Statistics
 - Consultation with SWCD, NRCS, VADCR, and VCE
 - Watershed visits
- Distribution of waste
 - Pastured
 - Confined, waste collected, spread
 - Direct deposition to the stream
- Seasonal varying applications

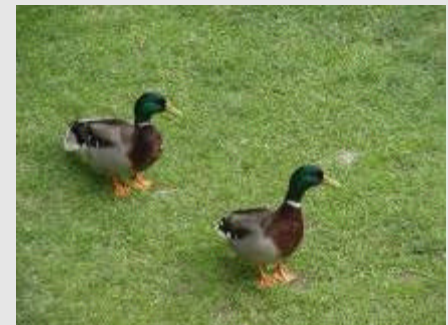


Livestock Population (2010) For The Project Area

Beef Cows	Beef Calves	Sheep	Horse	Goat	Hog
3,297	4,670	1,263	0	0	0

Wildlife Source

- Population
 - Animal densities from VDGIF biologists
 - Habitat from literature values
- Distribution of waste based on habitat
 - Land-applied
 - Direct deposition to the stream
- Seasonal variations based on migration patterns and food sources



Wildlife Population (2010) For The Project Area

Deer	Turkey	Coon	Muskrat	Duck	Goose
3,733	906	7,969	41,311	98	48

How do we Determine the TMDLs?

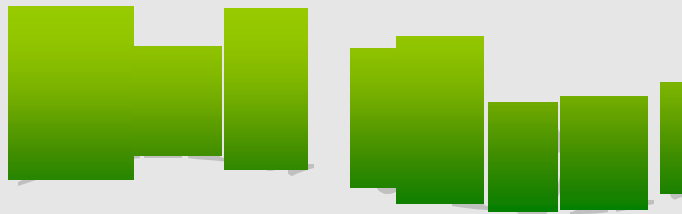


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Watershed data



TMDL



- Conduct the Analyses
- Public Meeting 2 (Date?)
- Public Review
- Submit to EPA
- State Approval
- Implementation Plan Development
- Implementation





We appreciate that you're taking the time to come to the meeting

We appreciate your feedback

Contact Information

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